CLAIMS

1. A tuning arrangement for equalising non-linear frequency changes within a certain frequency range in response to tuner displacements relative to a resonator body,

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the tuner (30) comprising a non-uniform distribution of the effective dielectric permittivity along the axis of tuner displacement.

2. The tuning arrangement according to claim 1, whereby the non-uniform distribution of the effective dielectric permittivity is realised by subdividing the tuner (30) into an arbitrary number of sections (311,312,313,314), each of which distinguishable at least by their geometrical shape or the value and distribution of the dielectric coefficient ε_r.

3. The tuning arrangement according to claim 1 or 2, whereby the effective tuning area is within a hollowness of the resonator.

4. The tuning arrangement according to claim 1 or 2, whereby the effective tuning area is outside of the resonator.

5. The tuning arrangement according to claim 3, whereby the tuner (41) includes two cylindrical sections (411,412a) comprising a ratio d_1/d_2 of section diameters within a range from 1.1 to 1.6 and a corresponding ratio l_1/l_2 of section lengths within a range from 0.2 to 0,4.

6. The tuning arrangement according to claim 3, whereby the tuner (51) includes two sections (511,512) having a constant diameter comprising a ratio $\varepsilon_{r1}/\varepsilon_{r2}$ for the values of the dielectric coefficients of the sections within a range from

2.5 to 3.5 and a corresponding ratio l_1/l_2 for the section lengths within a range from 0.2 to 0.4.

7. The tuning arrangement according to claim 4, whereby the tuner (81) includes two sections (811a,812a) comprising a ratio d_1/d_2 for the section diameters within a range from 1.1 to 2 and a corresponding ratio l_1/l_2 for the section lengths within a range from 1.2 to 2.8.

8. The tuning arrangement according to claim 4, whereby the tuner (81) includes two sections (811b,812b) having a constant diameter comprising a ratio $\varepsilon_{r1}/\varepsilon_{r2}$ for the values of the dielectric coefficients of the sections within a range from 1.2 to 4 and a corresponding ratio l_1/l_2 for the section lengths within a range from 1.2 to 2.8.

9. The tuning arrangement according to one of claims 1-8, whereby the tuner (41,51,71,81) is equipped with a hollowness for fastening of an axis.

10. The tuning arrangement according to claim 9, whereby the axis of tuner displacement is arranged centrally through the resonator hollowness.

11. A tuning arrangement for equalising non-linear frequency changes within a certain frequency range in response to tuner displacements relative to a resonator body,

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the resonator (34) comprising a non-uniform distribution of the effective dielectric permittivity along the axis of tuner displacement.

12. The tuning arrangement according to claim 11, whereby the non-uniform distribution of the effective dielectric permittivity is realised by subdividing the resonator into an arbitrary number of sections (341,342,343,344), each of which distinguishable at least by their geometrical shape

and the value and distribution of the dielectric coefficient ε_r.

13. The tuning arrangement according to claim 11 or 12, whereby the resonator consists of two sections (721a,722a) having a constant dielectric coefficient comprising a ratio d_1/d_2 of the diameters of the hollowness in each section within a range from 1.1 to 2.0 and a corresponding ratio l_1/l_2 of the section lengths within a range from 1.5 to 4.5.

14. The tuning arrangement according to claim 11 or 12, whereby the resonator consists of two sections (721b,722b) having a constant diameter, a ratio $\varepsilon_{r1}/\varepsilon_{r2}$ for the values of the dielectric coefficients of the sections within a range from 1.4 to 4 and a corresponding ratio l_1/l_2 for the section lengths within a range from 1.5 to 4.5.

15. The tuning arrangement according to one of claims 11-14 comprising a tuner according to one of claims 1-10.